



TDS Recon 400x PDA & Socket RF5402-544 RFID/Scan Compact Flash card

The Recon 400x is an Ruggedised IP67 rated PDA sealed against accidental immersion to 1 metre for 30 minutes, and meets the appropriate military standards for this rating. The Socket RF5402-544 CF RFID/Scan card is a low power compact flash device capable of reading and writing 13.56 Mhz ISO 15693 RFID tags and scanning most common barcodes.

For our purposes it will provide the ability to read the ICode SLI RFID Labels/tags affixed to the cartons and detonators respectively.

The RFID/Scanner is housed in a sealed optical cap which maintains the IP67 integrity of the device.

Regarding the possibility of the Socket RFID reader producing induced currents in detonators, as you know I carried out preliminary tests here at the Baldivis Explosive testing facility over a year ago, I used a Kenetics 13.56Mhz reader with a power output of up to 8 watts and also an ID-70 125Khz medium range reader with an approximate power output of 1-2 watts. Multiple antennae were used with the 13.56 Mhz reader with open and closed detonator lead loops and no matter what the configuration we could not get a Detonator to trigger, so the tests were successful.

Based on the above and the Electric Detonator Technical Data sheets provided by Orica and Dyno, the following conclusions have been made.

Since the wavelength at 13.56 Mhz is around 21 metres and the RF power generated by the Socket RFID reader is less than 100 milliwatts, it is not possible for this device to induce enough EMF (electro motive force) to generate the required circulating current to meet even the minimum required "No fire current" of 300 Milliamps (for TE-Instantaneous Electric Detonator as specified on page 2 of the Orica Technical Data Sheet)

Mobile phones on the other hand are UHF devices with quite short wavelengths around 30cm and radiate around 600 milliwatts of pulsed RF energy with a peak power output

of up to 2 watts and therefore could generate quite high circulating currents in short pieces of wire and that is the reason for banning them around explosive magazines.

Therefore based on the above it is my conclusion that Low power 13.56 Mhz devices such as the Socket CF RFID/Scanner will not present a hazard in a explosive magazine environment.

A handwritten signature in black ink, appearing to read 'G Mears', written in a cursive style.

Graeme Mears
Technical Director
Global RFID Systems Pty Ltd